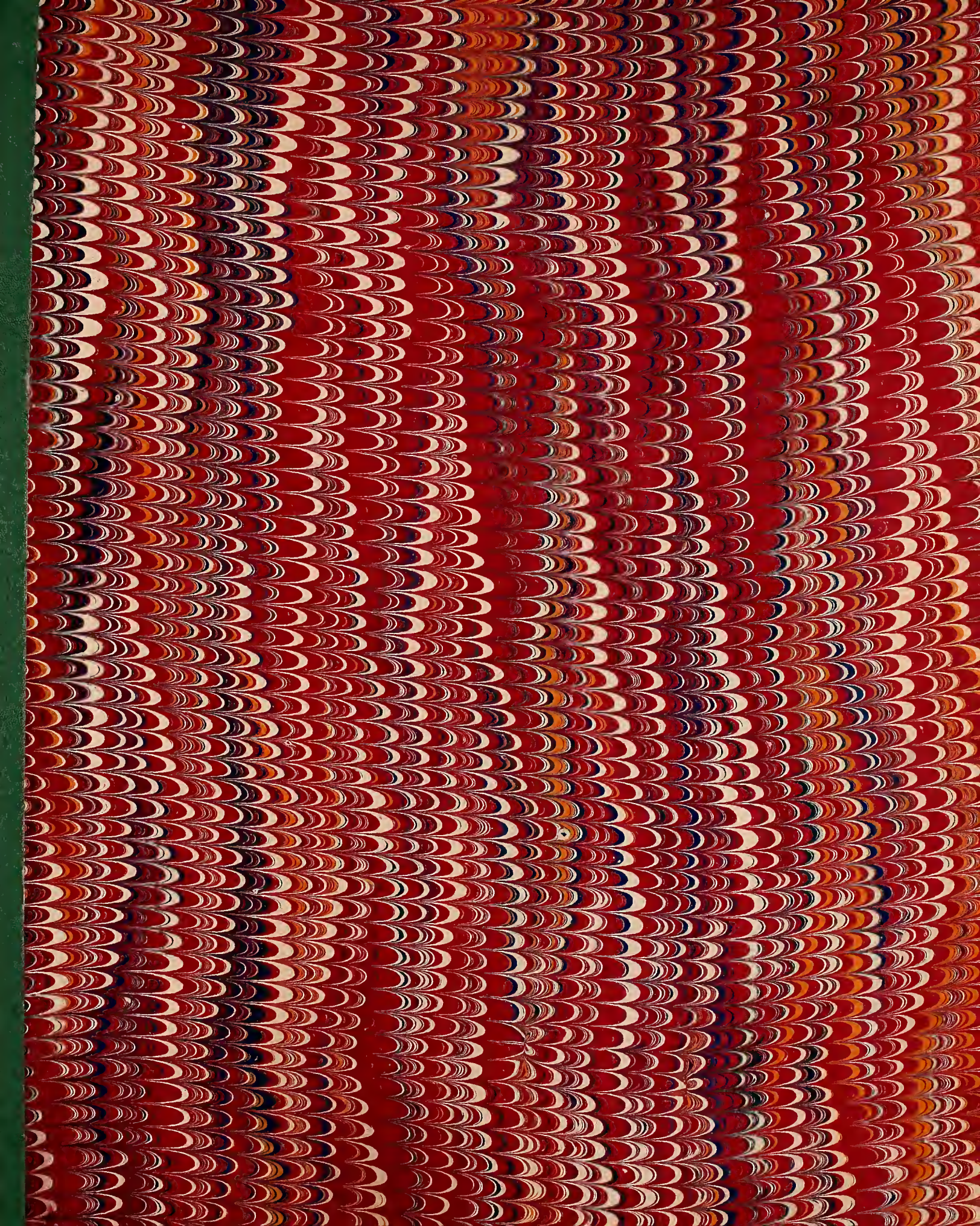



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United States

PHOTOGRAPHS

OF

SURGICAL CASES AND SPECIMENS.

PREPARED BY DIRECTION OF THE SURGEON GENERAL,

BY

Brevet Lieutenant Colonel GEORGE A. OTIS, Assistant Surgeon, U. S. A.,

CURATOR OF THE ARMY MEDICAL MUSEUM.

WASHINGTON:

SURGEON GENERAL'S OFFICE.



1.Mw.1865.22

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PHOTOGRAPH No. 50. *Completely Consolidated Gunshot Fracture of the Lower Third of the Left Femur.*

Private Charles Westerfield, Co. B, 5th New York Cavalry, aged twenty-two years, was wounded at the battle of the Wilderness, May 5, 1864, by a conoidal musket ball, which produced a comminuted fracture of the lower third of the left femur. He remained for two days in a field hospital, and was then transferred to Fredericksburg in an ambulance. He was treated at Fredericksburg with a starch bandage and moderate extension. On May 25th he was transferred to Armory Square Hospital, at Washington, where the fractured limb was supported by Smith's Anterior Splint. During May and June, a number of fragments of bone were eliminated. In August, the wounds closed and the fracture appeared to be firmly united, and on September 3, 1864, the patient was discharged from service, and was afterwards pensioned, his disability being rated one half and permanent. In the middle of September, 1864, Westerfield was able to walk without crutches. In April, 1865, his limb was photographed at the Army Medical Museum. It was observed that there was complete consolidation of the fracture, with two and a half inches shortening, and slight eversion of the leg. On July 25, 1865, Westerfield was engaged in active out-door employment. He could walk rapidly and without limping, with the aid of a high-heeled boot. There was no sign of necrosis about the fracture, and the wounds had never re-opened.

Photographed at the Army Medical Museum.

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SPECIMEN NO. 4982.—PHOTOGRAPHIC SERIES, NO. 49. *United Gunshot Fracture of the Lower Third of the Left Femur.*

Private James O'Connor, Co. F, 16th Michigan Vols., was wounded at Cold Harbor, Va., June 2d, 1864, by a conoidal musket ball, which passed through the thigh, three inches above the patella, fracturing the femur.

The patient was conveyed to Armory Square Hospital, at Washington. The limb was maintained in position by Hodgen's Splint. No extension was made. In the course of the treatment, eight small fragments of bone were removed through the wounds of exit.

In February, 1865, the fracture was firmly united, and the patient was able to walk briskly without any artificial assistance. The posterior wound was not entirely healed. In the latter part of the month he was assigned to the 48th Company of the Second Battalion of the Veteran Reserve Corps, by order of the Provost Marshal General, and was put on guard duty. Being unable to bear the fatigue of guard duty, he was returned to the hospital for treatment.

The photograph was taken June 22d, 1865. The wound was still open and there was slight discharge of sero-purulent matter. There was an inch and a quarter shortening, but no angular deformity. At the seat of fracture, the femur was somewhat enlarged.

O'Connor was discharged from the service, July 18th, 1865.

The particulars of the case were furnished by Acting Assistant Surgeon Geo. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

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PHOTOGRAPH No. 48. *United Gunshot Fracture of the Upper
Third of the Left Femur.*

Private Thomas L. Delap, Co. B, 32d Wisconsin Volunteers, was wounded February 3, 1864, in an engagement on the Coosahatchie River, by a conoidal musket ball, which fractured the left femur a little below the trochanters, and lodged. Delap was conveyed to the U. S. General Hospital at Beaufort, South Carolina, and was treated there, upon a double inclined plane, until May 6, 1865, when he was transferred to Armory Square Hospital, at Washington. On admission to Armory Square, May 10, 1865, the fracture was found to be firmly united with one and three-quarters of an inch shortening, and slight deformity. There was a slight discharge from the wound. The ball had not been extracted. The patient was unable to walk on crutches. On June 23, 1865, the photograph was taken. The wound had then healed. The ball remained in the limb. The patient could walk satisfactorily on crutches. He complained of inability to flex the injured thigh. The fracture had probably involved the insertion of the psoas and iliacus muscles. On July 13, 1865, the patient was transferred to the U. S. General Hospital at Madison, Wisconsin. He was discharged the service June 12, 1865, and pensioned, his disability being rated total and temporary. On March 19, 1867, Pension Examiner J. Bennett reported this man to be confined to bed with several fistulous openings in the thigh, and suffering from pain, fever, and debility.

Photographed at the Army Medical Museum.

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SPECIMEN No. 2393.—PHOTOGRAPHIC SERIES, No. 47. *United Gunshot Fracture of the Lower Third of the Left Femur.*

Private Michael Burns, Co. B, 28th Massachusetts Vols., was wounded by a conoidal musket ball, at the engagement at Hatcher's Run, Va., March 25th, 1865. The ball entered the anterior portion of the thigh, about four inches above the outer margin of the patella, and passed backwards, fracturing the femur, and making its exit posteriorly on a level with the wound of entrance.

Burns was admitted into Armory Square Hospital, at Washington, April 3d, 1865. There was but slight constitutional disturbance, and the wounds discharged but about half an ounce of laudable pus in twenty-four hours. The injured limb was shortened two inches. It was placed on a mattress and supported by sand bags, and extension was made by a weight of sixteen pounds. A liberal diet was ordered and twenty-drops of the tincture of the sesquichloride of iron thrice daily; but no stimulants.

On April 14th, the discharge was diminished to one drachm daily, and the shortening was reduced to one and a quarter inches. On May 11th, union was believed to be complete, and extension was removed and the patient allowed to walk about on crutches. On June 25th, the photograph was taken at the Army Medical Museum. The wounds were entirely healed, and the femur appeared to be firmly united. On July 5th, 1865, the patient was transferred to the U. S. General Hospital at Readville, Massachusetts.

Photographed at the Army Medical Museum,

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PHOTOGRAPHIC SERIES No. 46. *Consolidated Gunshot Fracture of the Lower Third of the Right Femur.*

Private Jacob Durst, Co. D, 69th New York Vols., aged 21 years, was wounded, March 25th, 1865, at the battle of Hatcher's Run, by a conoidal musket ball, which passed through the right thigh, five inches above the patella, from before backwards, splintering the femur.

The patient was admitted to Armory Square Hospital, March 30th, 1865, and was treated with Hodgen's apparatus until April 11th, and subsequently by Buck's method. There was comparatively little constitutional disturbance at any time, and the suppuration from the wound was slight. On June 9th, 1865, the fracture had firmly united, with $1\frac{1}{4}$ inches shortening.

On June 23d, 1865, the photograph was taken. The movements of the knee-joint were perfect. The wound of exit was still open, and discharged a trifling quantity of healthy pus. The patient was able to walk about briskly on crutches, and his general health was excellent.

The particulars of the case were furnished by Acting Assistant Surgeon George K. Smith, U. S. A., by whom the treatment had been conducted.

Photographed at the Army Medical Museum,

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PHOTOGRAPHIC SERIES No. 45. *Consolidated Fracture of
Right Femur.*

Private Clement H. Schellinger, Co. C, 9th New York Heavy Artillery, was wounded at the assault on Fort Fisher, North Carolina, April 2nd, 1865, by a musket ball, which fractured the lower third of the shaft of the right femur.

He was treated by maintaining the limb in position by sand bags, simply, and subsequently by a straight splint. The progress of the case was throughout favorable, and, early in June, the wound had closed. At the date at which the photograph was taken, a sinus had opened and discharged slightly. There appeared, however, to be but little doubt of the patient's ultimate recovery with a useful limb. There was slight eversion and one and a half inches shortening.

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PHOTOGRAPHIC SERIES No. 44. *Gunshot Fracture of both Parietals. Recovery.*

Private John W. Snyder, Co. B, 49th Pennsylvania Vols., was wounded by a conoidal musket ball, April 1, 1865, in an assault upon the entrenched lines at Petersburg, and was admitted to Judiciary Square Hospital, at Washington, April 12th, 1865.

On admission, he had dilated pupils, a slow pulse—56 per minute; restlessness and stupor. He could be aroused to consciousness. There was no paralysis. On April 13th, a fragment of depressed bone, three-fourths of an inch square, was removed, and the symptoms of compression of the brain gradually subsided.

During his convalescence, it was noticed that his vision was impaired, especially on the left side. On June 13th, the wound had cicatrized except at one minute point. It is probable that there was here a communication with a small necrosed fragment of bone.

The facts of the case were contributed by Assistant Surgeon Brinton Stone, U. S. Vols.

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SPECIMEN No. 1335. *Right Tibia and Fibula comminuted by a Cannon Ball.*

Major General D. E. Sickles, U. S. Vols., was wounded on the evening of the second day of the battle of Gettysburg, by a twelve pounder solid shot, which shattered his right leg.

General Sickles was on horseback at the time, and unattended. He succeeded in quieting his affrighted horse and in dismounting unassisted. Aid arriving promptly, he was removed a short distance to the rear to a sheltered ravine, and amputation was performed low down in the thigh, by Surgeon Thomas Sim, U. S. Vols., Medical Director of the 3d Army Corps. The patient was then sent to the rear, and the following day was transferred to Washington.

The stump healed with great rapidity. On July 16th, the patient was able to ride about in a carriage. Early in September, 1863, the stump was completely cicatrized, and the general was able again to mount his horse.

The specimen was contributed to the Army Medical Museum by General Sickles, and the facts of the case by his staff surgeon, Dr. Sim.

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SPECIMEN No. 2749. *Right Humerus and Elbow—Necrosis of the Entire Humerus following Gunshot Fracture of the Epiphysis.*

Private Barney White, Co. I, 37th N. Y. V., aged 22 years, was wounded at Williamsburg, Va., May 5th, 1862, in the right elbow by a conoidal musket ball. A simple dressing was applied, and he was removed to Yorktown, and thence to Philadelphia, where he was admitted to Race-Street Hospital.

No report can be obtained of the progress of the case until March 13, 1863, when the patient was transferred to the McClellan General Hospital, at Nicetown, with extensive necrosis of the shaft of the humerus and caries of the elbow joint. About the joint and arm, there were numerous sinuses, through which a profuse purulent discharge escaped, and, occasionally, small fragments of detached bone.

Under a supporting treatment, the general condition improved.

About the middle of July, it was first noticed that the patient's legs were cedematous. General anasarca ensued, and an examination of the urine showed that it was highly albuminous. The patient became rapidly worse, and, on August 12th, an uncontrollable diarrhea set in, accompanied by vomiting. The case terminated fatally, August 22d, 1863.

The characteristic lesions of Bright's disease were revealed at the autopsy.

The specimen was forwarded by Acting Assistant Surgeon C. H. Boardman, U. S. A. Additional particulars of the case were contributed by Surgeon Lewis Taylor, U. S. A.

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PHOTOGRAPHIC SERIES No. 41. *Recovery after Excision of the Head and Upper Portion of the Shaft of the Left Femur shattered by a Musket Ball.*

Lieut. Jarratt, of the 15th North Carolina (Confederate) Regiment, having a comminuted gunshot fracture of the upper extremity of the left femur, underwent, January 9th, 1864, an excision of the head, trochanters, and several inches of the shaft. The operation was performed at Richmond, Va., by Dr. Read, formerly of the Savannah Medical College.

The patient is said to have so far recovered at the expiration of six weeks from the date of the operation, as to be able to be removed to his home in North Carolina. He was last heard from in September, 1864, when all sinuses had healed, and considerable weight could be borne by the injured limb.

These particulars and the photograph of the patient were communicated by Assistant Surgeon E. W. Latimer, of the Confederate Army, to Acting Staff Surgeon W. H. Palmer, U. S. A., by whom they were forwarded to this Office.

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SPECIMEN No. 1915. *Sequestrum from Right Tibia, involving nearly the Entire Shaft.*

Private Westley Frost, Co. E, 85th Illinois Vols., aged 29 years, was admitted to a branch of Hospital No. 1, Nashville, Tennessee, with a simple ulcer on the right leg, and as a convalescent from pneumonia.

In a day or two, the ulcer began to slough, when it was treated by free applications of bromine, tonic, and stimulating constitutional measures being adopted at the same time.

About May 1st, the tibia became denuded, and small exfoliations were from time to time thrown off from it. By the middle of June, two-thirds of the crest of the tibia was exposed, and the greater portion of the shaft of the bone was affected with necrosis.

On July 27th, the sequestrum, $11\frac{1}{2}$ inches in length, was found to be lying loosely in the imperfectly formed involucrum, and it was removed without the aid of the knife or bone forceps.

The general health now improved, and the process of repair of the extensive loss of substance in the leg went on rapidly until August 20th, when an attack of jaundice supervened; subsequently the patient sank into a typhoid condition; abscesses burrowed in the affected limb, bed sores formed, incessant gastric irritability occurred, and symptoms were manifested that were regarded as conclusively indicative of the presence of pyemia. On September 23d, 1863, the patient died.

The specimen and facts connected with it were contributed by Surgeon Caleb W. Horner, U. S. Vols.

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SPECIMEN No. 1210. *Right Clavicle fractured transversely in the Middle by a Conoidal Musket Ball.*

Sergeant Samuel Adamson, Co. F, 125th Pennsylvania Vols., was wounded at Chancellorsville, May 3d, and admitted into Carver Hospital, at Washington, May 8th, 1863.

He had been struck by a conoidal musket ball, which entered a little to the right of the third dorsal vertebra, fractured the neck of the third rib, passed through the upper lobe of the right lung, and having fractured the clavicle, lodged behind it.

There was cough and bloody expectoration. Air entered the wound freely. On the 16th symptoms of pneumonia supervened. There was a copious discharge of sero-sanguinolent pus.

On May 20th, 1863, the case terminated fatally. The ball was found in contact with the fractured clavicle, as represented in the preparation. The fracture in this case is perfectly transverse, a result due, undoubtedly to the greatly diminished momentum of the ball.

The specimen and history were contributed by Dr. B. F. Craig.

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SPECIMEN No. 1042. *Upper Half of Right Femur, showing a firmly consolidated Gunshot Fracture immediately below the Trochanters.*

Private Luman M. Millius, Co. K, 6th Regiment Pennsylvania Reserves, was wounded at Antietam, Sept. 17th, 1862, by a conoidal musket ball, which entered a little below the great trochanter of the right thigh, shattered the upper third of the femur, and lodged beneath the skin on the inner part of the thigh, whence it was extracted through an incision.

The patient was treated in a field hospital until the middle of October, when he was transferred to the general hospital at Smoketown. Although a slender man, with a narrow chest and feeble organization, his condition on admission was satisfactory.

During the autumn of 1862, the suppuration was copious, and fragments of necrosed bone were occasionally discharged. Under a nourishing diet, the patient's strength was supported remarkably.

On January 21st 1863, the fracture was firmly consolidated. The limb was shortened four inches. There was no edema. The wound on the inner side of the thigh had closed. There was a slight fistula with trifling discharge at the wound of entrance. The patient passed several hours daily in the open air on crutches.

About this time cough and night sweats and other indications of tuberculosis of the lungs appeared, and confirmed phthisis was soon established. The patient died March 9th, 1863.

The specimen and account of the case were contributed by Surgeon B. G. Vanderkief, U. S. V.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. V., Curator A. M. M.



SURGICAL PHOTOGRAPH NO.

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PHOTOGRAPH No. 37. *Upper Third of Left Humerus shattered by a Musket Ball.*

Private George B. Stannard, Co. F, 17th Vermont Infantry, was wounded before the entrenched lines of Petersburg, Virginia, September 30, 1864, by a conoidal musket ball, which entered the upper part of the left arm posteriorly, comminuted the humerus, and lodged. The patient was transferred by an hospital steamer to Alexandria, Virginia, and entered King Street Hospital on October 13th. At that date the arm was much swollen. There was an incision, three inches in length, extending upwards and downwards from the wound of entrance; its lips were everted, and of an unhealthy aspect. The patient stated that he had been put under the influence of ether at the field hospital, and that the wound had been carefully explored; but he could not tell whether the ball or fragments of bone had been removed. On October 16th, there was profuse secondary hæmorrhage. The incision was extended, and a battered musket ball, impacted just below the anatomical neck, was removed, together with the head and five inches of the shaft of the humerus. Three bleeding vessels were secured, and the wound was left open for several hours, when, all oozing having ceased, it was closed by sutures and adhesive strips. On the following day there was a chill, followed by an intense febrile reaction, with irritability of stomach, hiccough, a glazed tongue, and an ichorous offensive discharge from the wound. On the 18th, the wound was gangrenous, and hæmorrhage recurred, and at night the case terminated fatally. The specimen, No. 3289, Section 1, and history were contributed by Surgeon Edwin Bentley, U. S. Vols.

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PHOTOGRAPH No. 36. *Partially Consolidated Gunshot Fracture of the Upper Third of the Left Femur.*

Private Christian Holzworth, Co. B, 20th Indiana Volunteers, was wounded at the second battle of Manasses, August 29, 1862, by a conoidal musket ball, which entered on the anterior aspect of the upper third of the left thigh, and lodged against the femur, which was fractured with extensive longitudinal splitting. He was conveyed to Armory Square Hospital at Washington. No particulars of the treatment employed can be ascertained; but it is reported that in March, 1863, he was able to go about on crutches, and that he was "doing well" until the latter part of May, when an attack of cerebro-spinal meningitis supervened, and terminated fatally on the 25th of May, 1863. Upon the examination of the injured limb, the fractured extremities of the femur were found to be united, with great angular deformity, by irregular arches of callus. A fragment of the ball was enclosed between the arches. The specimen was contributed by Assistant Surgeon C. C. Byrne, U. S. Army. It is figured on page 280 of the Catalogue of the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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SPECIMEN No. 3267. *Lower Half of Left Femur, exhibiting a partially Consolidated Gunshot Fracture of the Shaft. The deformed Callus encloses several Necrosed Splinters and a battered Musket Ball.*

Sergeant Sewell T. Douglas, Co. G, 1st. Regiment Maine Heavy Artillery, aged 28 years, was wounded at the battle of Spottsylvania, and was admitted to Emory Hospital, at Washington, May 22d, 1864. A musket ball, entering posteriorly, had fractured the lower third of the left femur and lodged in the medullary cavity.

The injured limb was placed on a double inclined plane, and moderate extension was used. Internally, stimulants and tonics were employed.

In August, 1864, the patient suffered from severe diarrhoea. There was a copious ill-conditioned discharge from the wound.

The patient died, September 26th, 1864, from exhaustion.

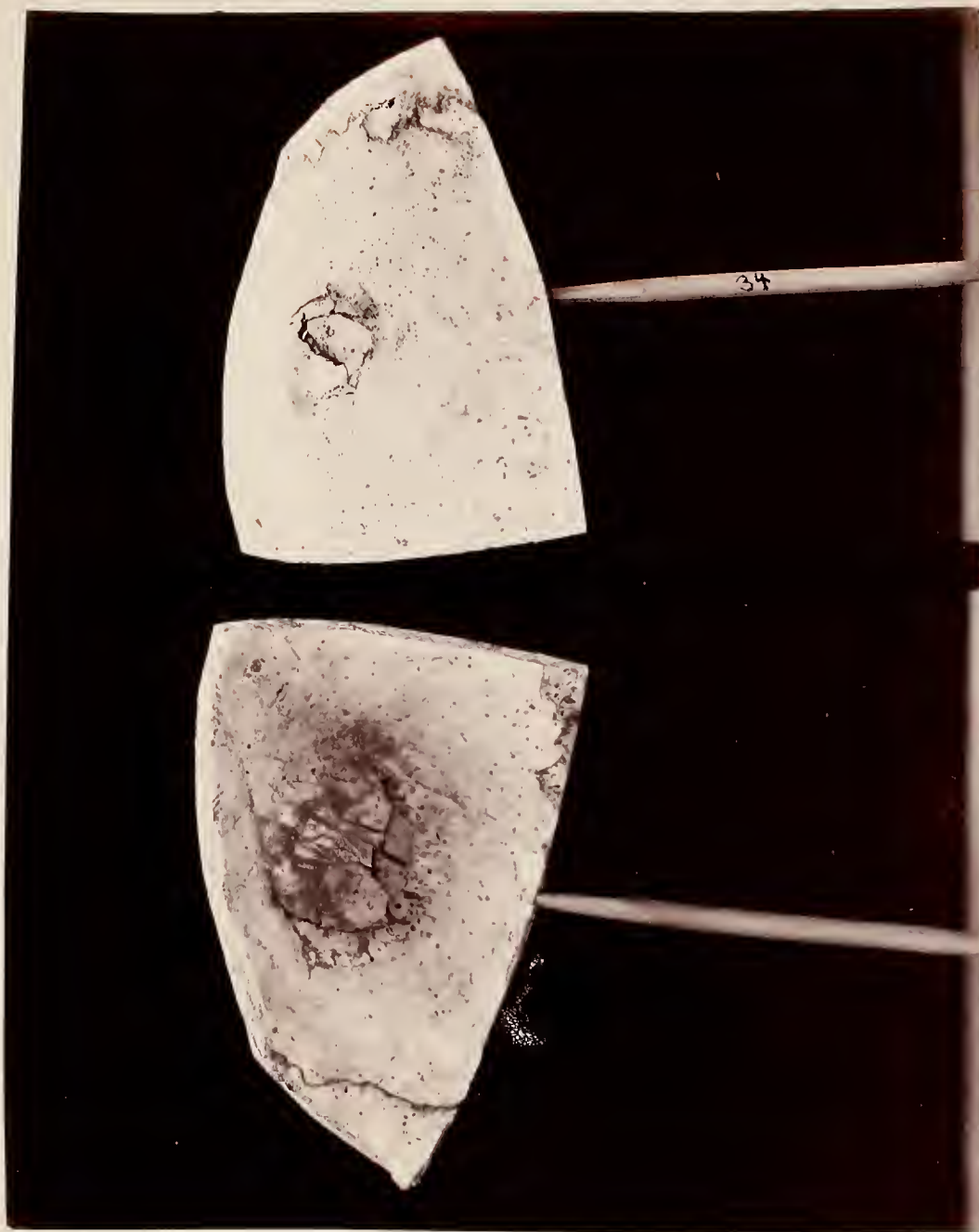
Acting Assistant Surgeon J. M. Downs, U. S. A., in charge of the case, made the post-mortem examination and forwarded the specimen.

Photographed at the Army Medical Museum.

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Surg. U. S. V., Curator A₁ M₁ M₂



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SPECIMEN NO. 1257. *Section of the Right Parietal Bone, exhibiting a Gunshot Fracture. The Outer Table of the Skull is slightly and the Inner Table extensively depressed.*

Private George V——, Co. C, 8th New York Vols., was wounded at Chancellorsville, May 3d, 1863, and admitted into Carver Hospital, at Washington, D. C., on May 7th, 1863.

His injury was supposed to be a simple scalp wound from a musket ball. It was situated over the right parietal protuberance, and, on admission, was granulating kindly.

Ten days subsequently, the patient, after a walk out of doors, had headache and nausea, and the wound gaped, and its edges ulcerated.

On the 18th of May, the probe detected denuded bone; but no fracture was discovered. There were no febrile or cerebral symptoms.

On May 20th, a depression of the outer table of the skull was detected. At night, there was delirium, and the following day the pulse became feeble and irregular, the stomach irritable, the tongue heavily furred.

The patient died on May 22d, 1863, being conscious and rational to the last.

At the autopsy, extensive inflammation of the dura mater was observed, and softening of the middle lobe of the right cerebral hemisphere.

Photographed at the Army Medical Museum,

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SPECIMEN NO. 3504. *Bones of the Right Leg, comminuted by a Conoidal Musket Ball.*

A general officer was wounded at the assault on Port Hudson, May 27th, 1863, by a conoidal musket ball, which passed from the inner to the outer aspect of the right leg, and shattered the upper thirds of the tibia and fibula.

A staff surgeon extracted a number of detached fragments of bone, and then sewed up the wounds by the glover's suture.

On June 2d, the patient was removed to New Orleans; the sutures were clipped, and decomposed coagula, pus, and bone splinters in large quantities were evacuated. The constitutional symptoms were of the most aggravated character.

About the middle of June, amputation was performed at the lower third of the thigh by Professor Warren Stone, with the very slightest hope of success. The patient, however, struggled through, and, ultimately, wore an artificial limb with comfort.

The specimen and the particulars of the case were contributed by Prof. F. Bacon, of Yale College, formerly Surgeon U. S. Vols.

Photographed at the Army Medical Museum,

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PHOTOGRAPHIC SERIES No. 32. *Shell Wound of the Face.*

Private William H. Nims, Co. D, 61st New York Vols., was wounded June 17th, 1864, in front of Petersburg, Va., and was admitted into Columbian College Hospital, at Washington, June 22d, 1864.

He was struck by a fragment of shell, which evacuated the humours of the right eye, and fractured the nasal bones and right superior maxilla.

The treatment consisted in the removal of fragments of bone, and adjustment of the lacerated soft parts.

At this date, April 25th, 1865, there is a small fistula, communicating, probably, with a necrosed fragment of the spongy bones.

Photographed at the Army Medical Museum,

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PHOTOGRAPH No. 31. *Left Femur, exhibiting a partly consolidated Gunshot Fracture of the Middle Third of the Shaft.*

Corporal H. Burns, Co. H, 31st New York Volunteers, was struck by a conoidal musket ball at the battle of Chancellorsville, May 3, 1863. The missile fractured the shaft of the left femur, with the usual longitudinal splintering. On May 8th, the patient was admitted to Douglas Hospital at Washington, and it was decided to attempt to save the limb. The limb was first suspended by Smith's anterior splint. Afterwards Hodgen's apparatus was applied, and apparently answered a better purpose; but large abscesses having formed in the thigh, and free incisions becoming requisite, a long fracture box, filled with bran, was substituted. On June 16, 1863, the ball and several fragments of detached bone were removed. The patient died on July 11, 1863, from exhaustive suppuration. Several days before his death, gangrenous patches appeared on the left leg. The preparation shows well the extent of the fracture and of the reparative process. There are several sequestra enclosed in the large deposit of callus. The specimen, and the facts concerning it, were contributed by Assistant Surgeon William Thomson, U. S. Army.

Photographed at the Army Medical Museum.

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SPECIMEN NO. 845. *Portions of the Eleventh and Twelfth Ribs of the Right Side, exhibiting Gunshot Fractures of the Shafts, with Attempts at Reparation.*

Private Silas Beckwith, Co. A., 83d New York Vols., was wounded at the battle of Fredericksburg, and was admitted into the Lincoln Hospital, at Washington, December 23d, 1862.

He had been struck by a conoidal musket ball in the back of the right chest, the ball entering over the attachment of the seventh rib, and passing forwards. The ball was extracted, and simple dressings were applied. Pleuro-pneumonia ensued, and resulted in empyema. On January 3d, 1863, a pint of pus was evacuated from the pleural cavity. The case terminated fatally on January 21st, 1863.

The specimen was contributed by Surgeon H. Bryant, U. S. Vols., and the particulars of the case were furnished by Surgeon J. Cooper McKee, U. S. A.

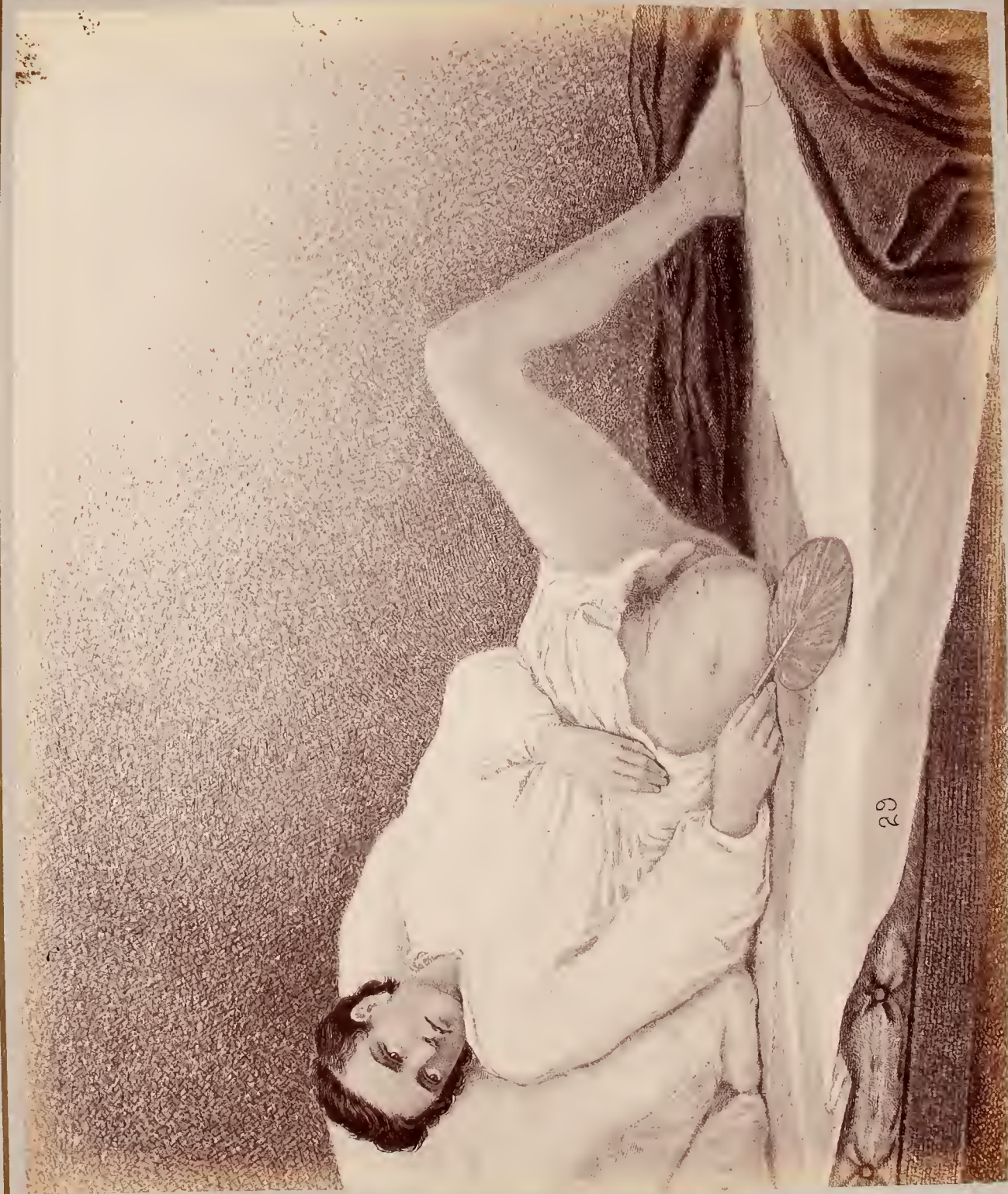
At the point of fracture, necrosed splinters are seen, attached by large irregular formations of callus.

Photographed at the Army Medical Museum.

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SPECIMEN NO. 2334.—PHOTOGRAPHIC SERIES, No. 29. *Case of Successful Secondary Amputation at the Right Hip Joint.*

Private Eben E. Smith, Co. A, 11th Maine Vols., aged 19 years, was wounded at the engagement at Deep Bottom, near Drury's Bluff, Va., on August 16th, 1864, by a musket ball, which fractured the head of the right tibia. He was admitted at the U. S. General Hospital at Beverly, New Jersey, on August 22d, 1864.

On admission, the injured knee-joint was swollen and painful, and there was irritative fever of a moderate grade. On September 12th, secondary hemorrhage occurred, and the thigh was amputated by circular incisions at the lower third, by Acting Assistant Surgeon J. M. Morton, U. S. A., the patient being under chloroform. The case progressed favorably until October 17th, when secondary hemorrhage recurred, and was arrested by ligating the femoral Artery in Scarpa's triangle.

The stump remained swollen and painful, and furnished a profuse fetid suppuration. Osteomyelitis supervened: the end of the femur protruded, and was removed by the chain saw. Necrosis finally extended as high as the trochanters, and numerous abscesses formed.

On January, 19th, 1865, amputation at the hip-joint was performed, under chloroform, by Acting Assistant Surgeon J. A. Packard, U. S. A., the antero-posterior flap operation being adopted. On January 27th, there was hemorrhage from the stump, and the external iliac artery was tied. The ligature separated on February 17th, and two days afterwards there was profuse bleeding from the divided artery, which was contracted by pressure for fourteen days. After this the patient rapidly improved. In April, he was reported well, and Hospital Steward Baumgras, one of the artists of the Army Medical Museum, was sent to Beverly, and made the drawing from which the photograph was taken. It is numbered 67 in the Surgical Series of Drawings.

On April 12th, 1865, Smith was transferred to White Hall Hospital, near Bristol, Penn. Assistant Surgeon W. H. Forwood, U. S. A., reports that, on May 27th, 1865, he was discharged from service, quite well and strong, the wounds being entirely healed.

The necrosed lower portion of the femur is Specimen 3709; the upper portion is Specimen 81, A. M. M.

Photographed at the Army Medical Museum,

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PHOTOGRAPH No. 28. *Greater Portion of Right Superior Maxilla, necrosed and detached as a Result of Mercurial Poisoning.*

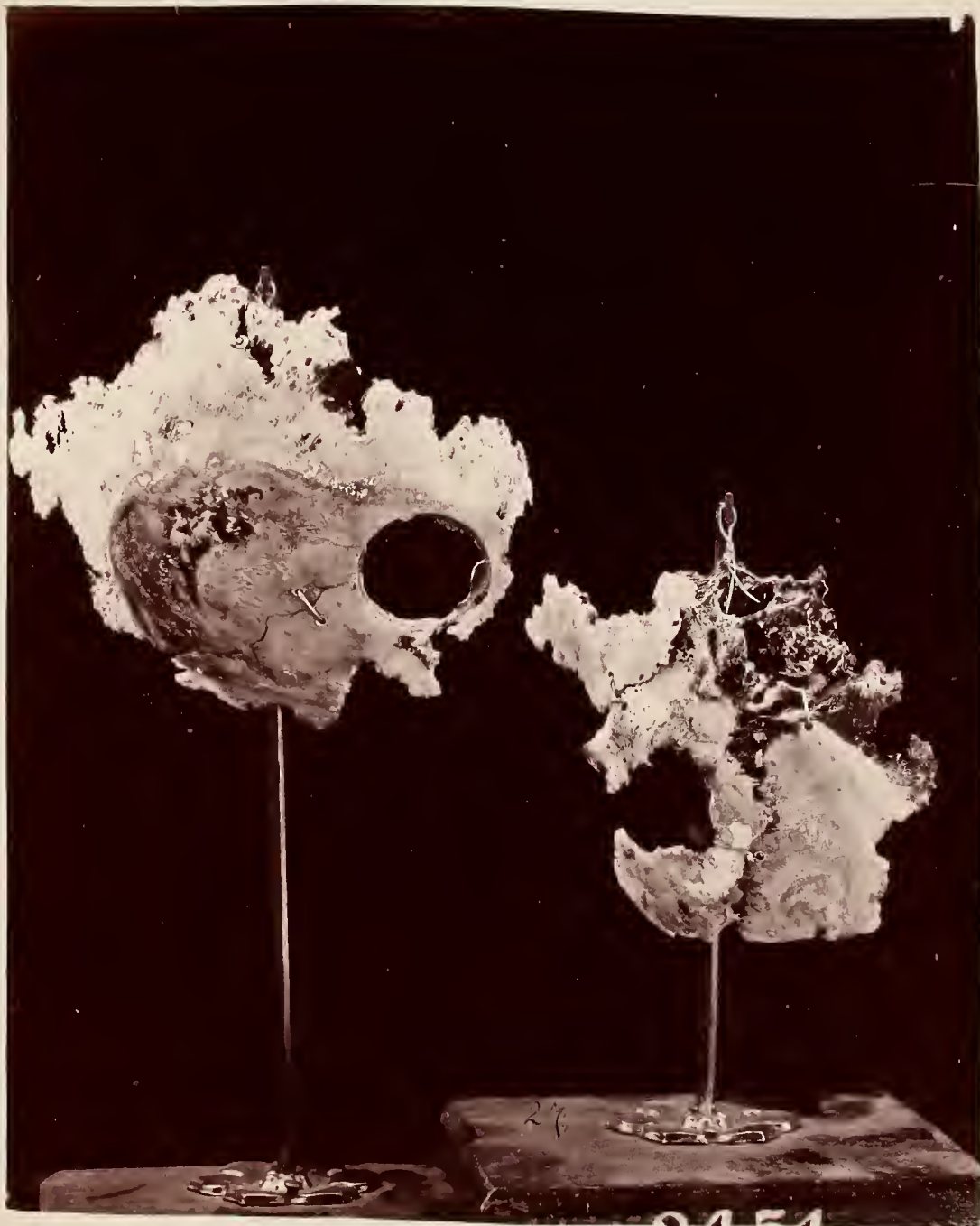
Private Carleton Burgan, Co. B, Purnell's Legion of Maryland Volunteers, aged twenty years, was admitted to General Hospital at Frederick, Maryland, August 4th, 1862, in a prostrate condition. He had a bed-sore over the sacrum; his body was bathed in sweat and covered with sudamina; his tongue was dry, and his teeth covered with sordes. It was reported that he had been sick in camp since June 5th, and that he had recently taken, as treatment for pneumonia, two scruples of calomel, one scruple of mercury with chalk, and sixty-five grains of blue pill. On August 6th, a jagged ulcer was discovered on the right edge of the tongue. On the 10th, a slough appeared on the gum at the root of the right upper bicuspid tooth, and rapidly extended to the cheek and the roof of the mouth. On the 21st, sloughing had nearly reached the orbit, and the entire upper maxilla, was exposed. From this date, the parts gradually assumed a healthy action. On October 1st, the entire right superior maxilla, the vertical plate of the palate bone, and a narrow strip of the left maxilla, being quite separated from the healthy bone, were removed. The great loss of substance on the right side of the face caused frightful deformity. On December 23d, 1863, the patient was discharged from the service of the United States. A colored plaster cast of his face was prepared previous to the patient's discharge, and deposited in the Army Medical Museum. The patient was subsequently the subject of a very successful plastic operation by Dr. Gurdon Buck, which is described by that eminent Surgeon in an illustrated paper in the Transactions of the New York State Medical Society, for 1864. The Specimen was contributed by Assistant Surgeon R. F. Weir, U. S. A. It is numbered 557 in the Surgical Section of the Museum. The history of the case was contributed by Acting Assistant Surgeon J. H. Bartholf, U. S. A.

Photographed at the Army Medical Museum.

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SPECIMEN No. 3451. *Exfoliation from the Right Temporal and Parietal Bones, resulting from Gunshot Injury.*

Private William Fisher, Co. G, 98th Penn. Vols., was wounded near Fort Stevenson, Defences of Washington, July 12th, 1864, by a glancing shot from a conoidal musket ball, and was admitted into Mount Pleasant Hospital on the following day.

A little above the right auditory meatus was a scalp wound an inch and a half long. A piece of the mastoid process was chipped off, and a fracture extended into the petrous portion of the temporal.

The patient did well with simple dressings and rest and gentle cathartics till the 20th of May, when the wound began to slough. Applications of nitric acid, creosote, etc., failed to arrest the sloughing, which presently gave rise to repeated hemorrhages from branches of the temporal artery.

The gangrene continued to spread until August 9th, when the eschars separated, leaving a space five inches in diameter on the right lateral region of the head denuded of integument, fascia and muscles.

During this long period, the patient complained of no inconvenience at the seat of fracture, though there was at times acute frontal pain.

Early in September, it was evident that the exposed portions of the temporal and parietal bones were necrosed, and on Sept. 6th, a fragment of the squamous portion of the temporal was removed by Act. Asst. Surgeon H. Craft, U. S. A. Two days subsequently other fragments became detached, and on the 10th Dr. Craft extracted a portion of the temporal that had been driven through the dura mater.

After this the wound began to cicatrize rapidly, and on Dec. 3d, 1864, the patient was reported to be entirely out of danger, and, in fact, nearly well.

The specimen, with memoranda from Act. Asst. Surgeons Porter, Kern, and Crafts, was contributed by Asst. Surgeon C. A. McCall, U. S. A.

Photographed at the Army Medical Museum,

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SPECIMEN No. 3452. *Exfoliation from the Right Parietal Bone, resulting from a Gunshot Depressed Fracture. The Patient recovered.*

Private John McKane, Co. H, 105th Pennsylvania Vols., was wounded at Petersburg, Va., June 14th, 1864, by a conoidal musket ball, which struck the right side of the skull very obliquely, and produced a slightly depressed fracture of the right parietal bone. He was admitted to Mount Pleasant General Hospital, Washington, on June 24th, with the report that the progress of the case had been so far eminently satisfactory.

After admission, he was found to be insensible, and a few hours subsequently, convulsions supervened in rapidly recurring paroxysms. Twelve ounces of blood were taken from the temporal artery without apparent benefit. A trephine was then applied at the seat of fracture. A portion of the inner table was found slightly depressed. This was elevated, and the patient soon afterwards regained consciousness.

On the 28th of June, the wound in the scalp became erysipelatous, and before the inflammation subsided there was extensive loss of substance of the integuments and pericranium, denuding a large portion of the parietal bone. Necrosis ensued, and embraced the whole thickness of the bone.

In September, 1864, a portion of the parietal three inches by four, had become so much loosened that it was readily removed by Act. Asst. Surg. H. Craft. After this, cicatrization went on rapidly, and, at the date of the last report, December 2d, 1864, the wound had contracted to an ulcer less than an inch in diameter.

The patient's mental faculties were impaired more or less, the ward physician thought, but not to a great extent.

The specimen was contributed by Asst. Surgeon C. A. McCall, U. S. A.

Photographed at the Army Medical Museum.

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SPECIMEN NO. 224. *Portion of Left Parietal Bone, exhibiting a Slight Fracture of the External Table and Extensive Splintering of the Vitreous Table.*

Private Leonard L——, Co. F, 74th New York Vols., was wounded at the battle of Williamsburg, May 5th, 1862, and was admitted into Broad and Cherry Sts, Hospital, at Philadelphia, May 13th, 1862.

A musket ball had struck near the left parietal eminence, and, producing a slight depression of the outer table, had lodged under the scalp, whence it had been removed by a surgeon on the field. The wound had an healthy aspect when the man was admitted, and there was no cerebral disorder. This favorable condition continued unaltered until May 20th, when a febrile movement set in, accompanied by nausea and vomiting; drowsiness and stupor followed, and the patient died comatose on May 23d, eighteen days after the injury.

At the autopsy, a small clot was found beneath the depressed portion of the vitreous plate; the dura mater was uninjured; the arachnoid, near the seat of injury was opaque, and studded with deposits of lymph; the grey matter of the brain was softened.

The specimen and history were contributed by Act. Asst. Surgeon E. Livesey, U. S. A.

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PHOTOGRAPH No. 25. *Fourth, Fifth, and a portion of the Sixth Dorsal Vertebrae, sawn asunder to show the Point of a Knife-blade, which, passing between the Transverse Processes of the Fourth and Fifth Vertebrae, and traversing the Vertebral Canal, has entered the body of the Fifth Vertebra.*

Private George Sweeney, Co. B, 15th New York Engineer Regiment, in an altercation with a comrade, was stabbed in the back with a dirk, at Falmouth, Virginia, the 20th of April, 1863. He was admitted to Armory Square Hospital, at Washington, on April 22d, completely paraplegic. On April 27th, he began to pass his feces and urine involuntarily, and bed-sores appeared on the portions of the lower part of the body exposed to pressure. He sank very slowly, dying from exhaustion on May 27, 1863. The specimen was contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 24. *Three Dorsal Vertebrae, with a Musket Ball lodged in the Vertebral Canal.*

Private Frederick Lord, Co. H, 8th New York Volunteers, aged 26 years, was wounded at Cold Harbor, June 3, 1864, and admitted into Carver Hospital, at Washington, D. C., June 11th. He stated that, immediately upon the reception of his injury, he lost all sensation and power of motion below the wound. On admission, he was in a very feeble state; his pulse was slow, his respiration labored, his skin cool, clammy and cyanosed, his excretions involuntary. In this wretched condition he lingered till the 27th of June, when symptoms of extreme gastric irritability supervened, and every form of nourishment was promptly rejected by the stomach. He died July 2, 1864. At the autopsy it was found that the transverse articular processes of the eighth and ninth dorsal vertebrae were shattered by the ball. The spinal cord appeared to have been completely severed at the seat of injury. It was disorganized above and below. In several places the omentum was agglutinated to the intestines by recent effusions of lymph.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 23. *Skull-cap, exhibiting Gunshot Fracture near the Vertex by a Conoidal Musket Ball, which has split against the Lamina of the Left Parietal. The Patient died Twenty-three days after the infliction of the Injury.*

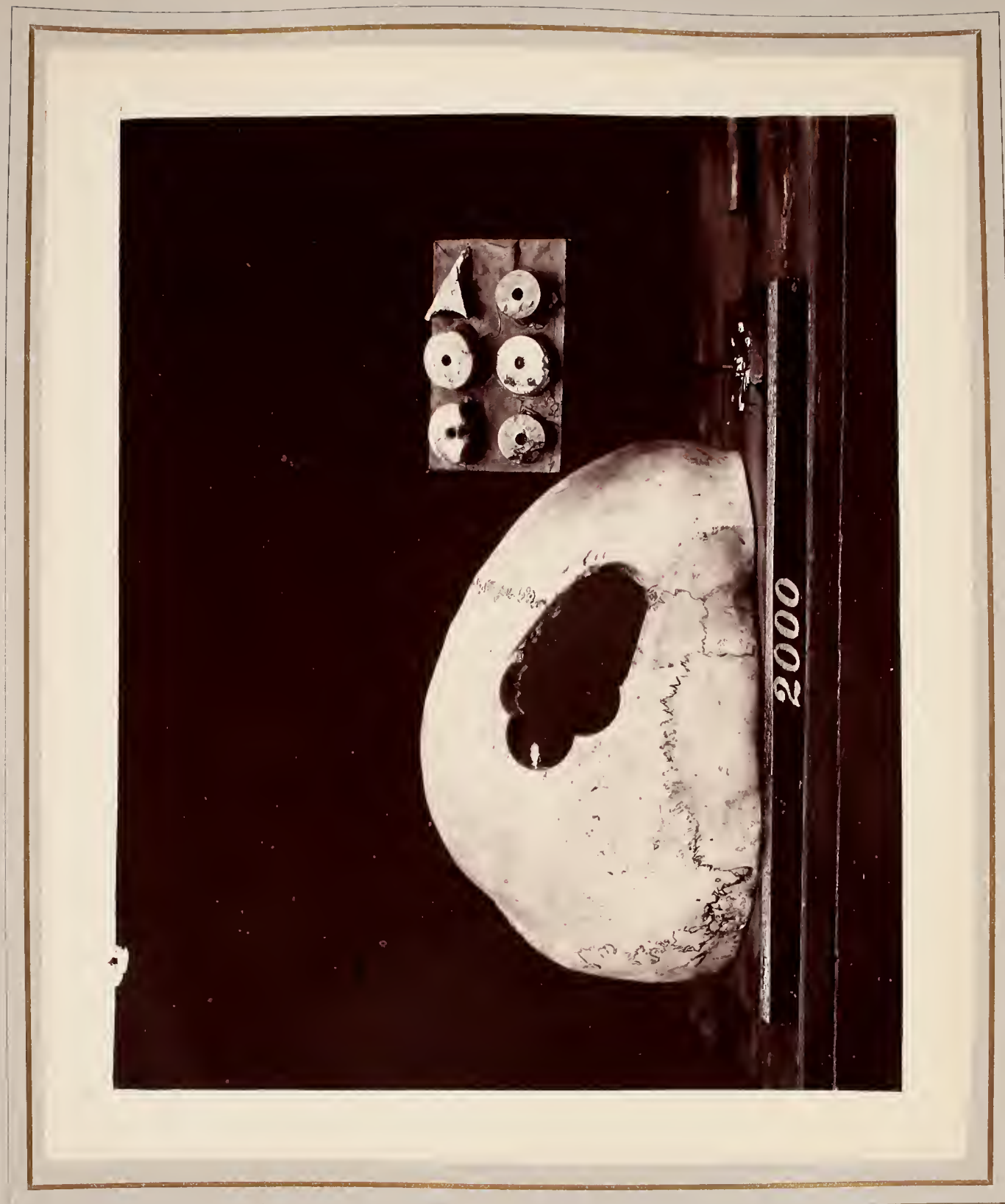
Private C. C. W——, Co. I, 6th Wisconsin Volunteers, aged twenty-one years, was wounded in the Wilderness, May 12, 1864, and was admitted to Douglas Hospital, in Washington, four days subsequently. It was ascertained that the cranium was fractured, but the symptoms were not urgent, being limited to slight paralysis of the right upper extremity, and operative interference was deferred. On May 31, a conoidal musket ball, and several fragments of the left parietal were removed by Assistant Surgeon Wm. F. Norris, U. S. Army. One large fragment of the vitreous plate was pressing on the dura mater; this was elevated and removed. The next day symptoms of compression of the brain were manifested. An exploration of the wound was made, and a quantity of pus evacuated. On June 4, 1864, twenty-three days after the injury, the case terminated fatally. At the autopsy, the arachnoid was found little altered. There was an abscess in the posterior lobe of left hemisphere near the longitudinal sinus of the size of a walnut. Its walls were of a greenish yellow color. It communicated with the lateral ventricle. The right ventricle was filled with sero-sanguinolent fluid. There was a deposition of lymph at the base of the brain, extending from the medulla oblongata to the bifurcation of the optic nerves. The specimen and history were contributed by Assistant Surgeon William Thompson, U. S. Army.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 22. *Section of a Cranium, exhibiting five Trephine Perforations for the Evacuation of Pus, the result of a Gunshot Contusion of the Right Parietal. The Patient survived the Operation Twelve Hours.*

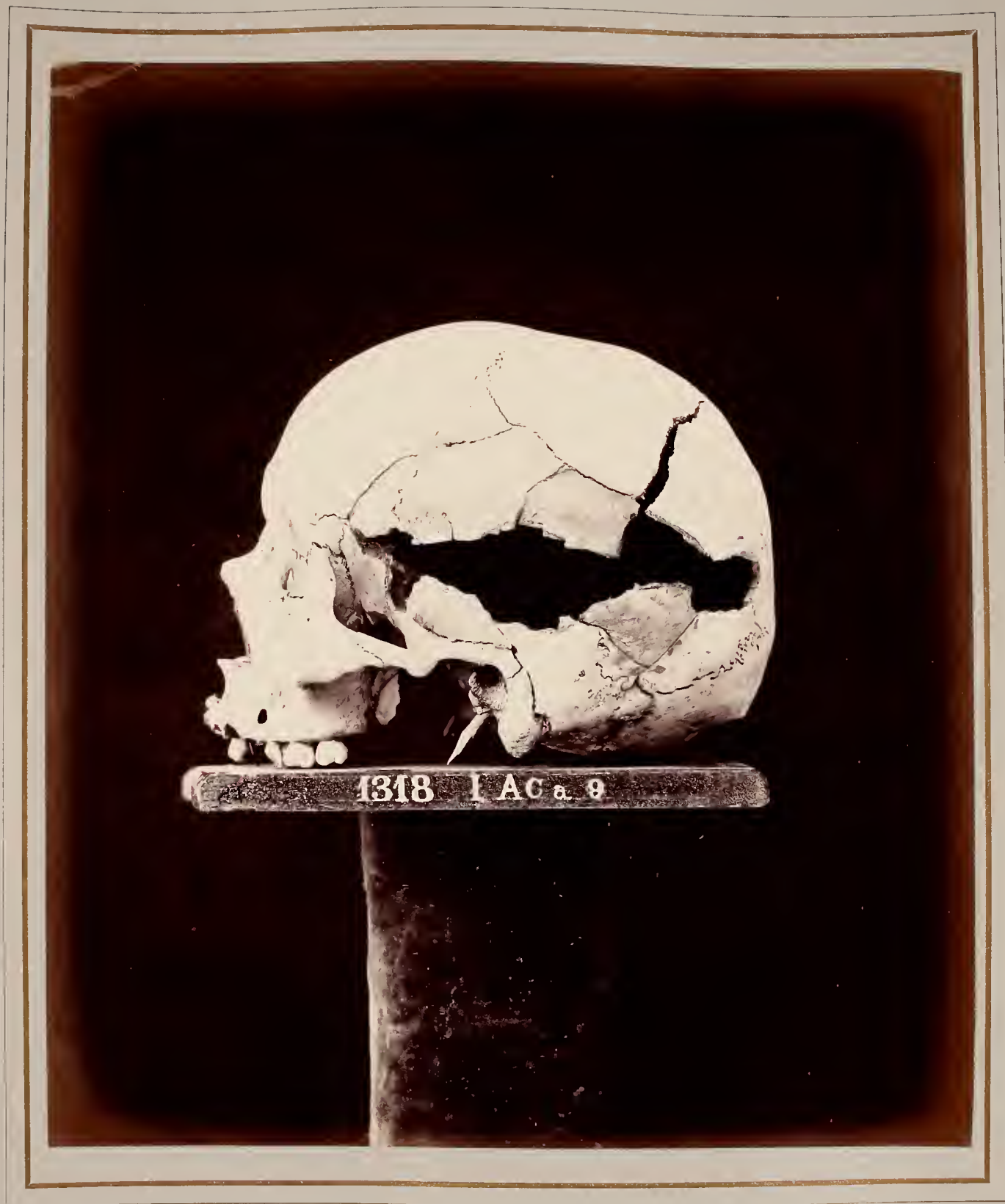
Private Joseph R—, Co. E. 151st New York Volunteers, received in a reconnoissance near the Rapidan, Nov. 27th, 1863, a gunshot wound of the scalp. The nature of the missile was unknown. The patient was removed to Fairfax Seminary General Hospital. There were no cerebral symptoms at the time of his admission, and it was hoped that the pericranium had escaped uninjured. He was up and apparently well on December 13th, 1863, when he was suddenly seized with convulsions, which were followed by coma. Surgeon D. P. Smith, U. S. Vols, laid bare the calvaria at the seat of injury, and finding the bone diseased, applied the trephine. Matter was found immediately beneath the bone and oozing from the diploe. It was thought expedient to make five perforations with the trephine, in order to remove the diseased bone, and give free exit to pus. Convulsions did not recur, but the comatose condition continued, and the case terminated fatally twelve hours after the operation. The autopsy revealed diffused inflammation of the arachnoid and dura mater. The Specimen is numbered 2000 in the Surgical Section of the Museum.

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PHOTOGRAPH No. 21. *Skull, exhibiting an extensive Fracture from Grape-shot. The Missile entered the Left Parietal Bone near the Lambdoidal Suture, and emerged through the Squamous portion of the Temporal Bone.*

The specimen was picked up by Surgeon Frederick Wolfe, 39th New York Vols., in June, 1863, under an abatis near the stone bridge over Bull Run, and is supposed to be the cranium of a confederate soldier, killed in the second battle of Manassas, August, 1862. At that action a portion of Longstreet's Corps charged upon one of the federal batteries in position near this locality.

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PHOTOGRAPH No. 20. *Second, Third, and Fourth Lumbar Vertebrae, with a Conoidal Ball imbedded in the Left Side of the Body of the Third Lumbar Vertebra.*

Private Thomas Durning, Co. F, 1st Michigan Sharpshooters, aged nineteen years, was wounded, June 26, 1864, and admitted into Stanton U. S. General Hospital, Washington July 1, 1864. An elongated musket ball, entering the loins just above the crest of the left ilium, buried itself in the body of the third lumbar vertebra, carrying with it a portion of the man's blouse. On July 4th, symptoms of tetanus appeared, which became rapidly of the gravest nature, and the case terminated fatally on the next day, July 5, 1864. The specimen was contributed by Assistant Surgeon George A. Mursick, U. S. Vols.

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PHOTOGRAPH No. 19. *Lower Half of Right Femur, with Ball impacted above the Inner Condyle.*

Private Orson B. Norwood, Co. K, 3d Michigan Cavalry, was wounded, July 15, 1863, in a skirmish near Jackson, Tennessee. He was acting as a vidette at the time, and was stationed on a bridge. The ball, fired from below, produced a long fissure in the lower third of the inner aspect of the femur, and was itself split by the compact lamina of the bone. This patient was removed to the general hospital at Lagrange, Tennessee, July 22, 1863. The thigh was then erysipelatous, and amputation was deemed inadvisable. September 27, 1863, the patient was removed to the Washington Hospital at Memphis, where he died of pyæmia, October 2, 1863. The fragment on the inner surface of the femur, though but slightly separated from the diaphysis, was found to be necrosed. The specimen was forwarded by Assistant Surgeon Joseph P. Wright, U. S. Vols.

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PHOTOGRAPH NO. 18. *Penetrating Gunshot Wound of the Thorax and Abdomen. A Round Musket Ball having entered the Left Pleural Cavity passed through the Diaphragm, and thence into some Part of the Intestinal Canal. Recovery.*

Captain Robert Stolpe, Co. A, 29th New York Volunteers, was wounded at Chancellorsville, on the 2d of May, 1863. A round musket ball, fired from a distance of about one hundred and fifty yards, entered the eighth intercostal space of the left side, at a point nine and a half inches to the left of the extremity of the costiform cartilage, and fractured the ninth rib. Without wounding the lung, apparently, the ball passed through the diaphragm, and entered some portion of the alimentary canal. Captain S. walked a mile and a half to the rear, and entered a field hospital. On examining the wound, the surgeons found a protrusion of the lung of the size of a small orange, which they unavailingly attempted to reduce. The wound was enlarged, and still it was impracticable to replace the protruded lung. On May 3d, the field hospital where Captain Stolpe lay, was exposed to the enemy's fire. He walked half a mile farther to the rear, and was there placed in an ambulance and taken across the Rappahannock, at United States Ford, to one of the base hospitals. Here fruitless efforts were again made to reduce the hernial tumor, after which a ligature was thrown around its base and tightened. A day or two subsequently the patient passed into the hands of Surgeon Tomaine, who removed the ligature from the base of the tumor. A small portion of the gangrenous lung separated and left a clean granulating surface beneath. On May 7th, the ball was voided at stool. On May 8th, the patient was visited by Surgeon John H. Brinton, U. S. Vols., who found him walking about the ward, smoking a cigar. There was an entire absence of general constitutional symptoms; no cough, no dyspnea, no abdominal pain; the bowels were regular and appetite good. The protruding portion of lung was carnified, and there was dullness on percussion and absence of the respiratory murmur in a zone an inch and a half in width around the circumference of the base of the tumor. Surgeon Tomaine stated that the hernia had been gradually diminishing in volume. It was at this date half the size of an egg, and covered with florid granulations. On May 10th, a drawing of the parts (No. IX) was executed by Mr. Stauch, artist of the Army Medical Museum. On June 2d, Captain Stolpe was transferred to Washington, and was visited by Surgeon Brinton and Dr. Henry G. Clark, of Boston. There was an elastic partially reducible tumor, over which was an oval granulating surface, an inch and a half by three-quarters of an inch. The vesicular murmur was perfect throughout the lung except in the immediate vicinity of the tumor. Compression of the tumor was advised. After a visit to Easton, Pa., and a furlough of sixty days, Captain Stolpe returned to Washington. On November 13th, 1863, he was again examined by Surgeons Brinton and Goldsmith, and Assistant Surgeon Woodward, U. S. A. The wound had entirely healed; the respiratory sounds were normal; there was still a slight hernia of the lung. The general health of the patient was excellent. At this date the second drawing (No. X) was executed by direction of Surgeon J. H. Brinton, who also recorded the foregoing facts in relation to the case.

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PHOTOGRAPH NO. 17. *Successful Excision of the Head of the
 Left Humerus and Coracoid Process of the Scapula.*

Private R. Jones, company D, 67th New York Volunteers, aged twenty-two years, was wounded May 12, 1864, at the battle of Spottsylvania, by a conoidal musket ball, which comminuted the surgical neck of the left humerus and the coracoid process of the scapula, and lodged just below the clavicle. He was removed to Fredericksburg, and thence to Washington, and was admitted to Carver U. S. General Hospital, May 16. At that date the shoulder was highly inflamed, and the arm greatly swollen. The patient was placed under the influence of ether, on May 17, and the head and two inches of the shaft of the humerus, and the fragments of the coracoid process, were removed through an U shaped incision, by Surgeon O. A. Judson, U. S. Volunteers. The case progressed rapidly towards recovery, and without any unfavorable complications. Attention was paid to supporting the elbow, in order to approximate the upper extremity of the humerus to the glenoid cavity, and the wound was kept open for a time by dossils of lint. The coraco-brachialis and the short head of the biceps doubtless formed new attachments at the base of the coracoid process. The photograph of the patient was taken December 1, 1864, at which date the cicatrix was perfectly sound, and the patient's control over the movements of the limb eminently satisfactory. Jones was discharged from service December 12, 1864. The specimen is 2479 of the Surgical Section of the Army Medical Museum.

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SPECIMEN No. 1481. *Amputated Extremity of the Right Femur and Upper Extremity of Tibia, with a Round Musket Ball impacted near the Spinous Process of the Articular Surface of the Tibia.*

Private ———, a soldier of the 3rd Division of the 1st Army Corps, was wounded at Gettysburg, Penn., on July 1st, 1865, by a musket ball which entered through the right popliteal space, fissured the internal condyle of the femur, and lodged in the head of the tibia.

He underwent amputation of the lower third of the thigh on July 15th, and died July 17th, 1865. The specimen was contributed by Surgeon P. A. Quinan, in charge of the Division Hospital.

Photographed at the Army Medical Museum,

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PHOTOGRAPH NO. 15. *Skull-Cap, exhibiting a Bayonet Perforation of the Left Parietal.*

Private Thomas Graham, Co. B, 90th Ohio Volunteers, was admitted into Hospital No. 1, Nashville, Tennessee, on November 27th, 1863, with a bayonet wound behind the left parietal protuberance, inflicted by a sentinel, whom the patient, being intoxicated, had refused to obey. For several days after admission, he was somnolent and obstinately constipated. Under the use of powerful purgatives this condition was removed, and the wound nearly cicatrized. But on December 8th, the patient complained of headache, and a probe passed through the small orifice of the wound, revealed the presence of denuded and detached bone. A semi-crucial incision was made and the fragments of dead bone were removed. On December 11th, there was more headache, and a tendency to stupor; the pulse was at 48; there was intolerance of light and sound; the scalp was tumid; the wound gaping and filled by fungous granulations. The incisions in the scalp were extended; an ice bladder was applied to the head, and purgatives and purgative enemata were employed. A day or two subsequently cerebral hernia took place; then extended suppuration in the left hemisphere; then delirium and coma, and death on December 23d, 1863. The description and specimen were contributed by Assistant Surgeon C. J. Kipp, U. S. Vols. The Specimen is numbered 2179 in the Surgical Section of the Museum.

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PHOTOGRAPH NO. 14. *Upper Portion of Right Femur, the Neck and Trochanter Major shattered by a Conoidal Musket Ball.*

Private P. Johnson, Co. C, 2d Delaware Volunteers, was wounded at the battle of Fredericksburg, December 14th, 1862, by a conoidal musket ball, which entered the upper part of the right thigh in front and passed out at the nates, having, in its course, divided the femoral artery and perforated the great trochanter. Except that the primary hæmorrhage was slight, little is known of the early history of the case. On December 25th, the wounded man was conveyed to Washington, and placed in the Douglas Hospital. On admission, nearly the entire injured limb was gangrenous, and it was believed that the fracture extended into the hip-joint. Brigade Surgeon P. Pineo, U. S. Vols., in charge of the hospital, decided to amputate at the hip-joint, "with no hope of a favorable result, but to mitigate the patient's distress in the last moments of life." On December 27th, anæsthesia being induced by ether, the operation was performed. The patient survived it only a few hours. The pathological specimen was sent to the Army Medical Museum and is numbered 710 in the Surgical Section. It exhibits a perforation of the great trochanter, with radiating fissures, which separate the trochanter and neck into four fragments, and run obliquely down the shaft. Traces of the results of periostitis are visible along the shaft.

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PHOTOGRAPH NO. 13. *Upper Fourth of the Left Femur fractured by a Musket Ball, which entered the Pelvis.*

Private ——— was wounded, August 28, 1862, at Gainesville, Virginia, in the engagement between General King's division of the First Army Corps and the Confederate forces under General Jackson. The diagnosis was that the trochanters and neck of the left femur were badly splintered, and that the ball had lodged near the acetabulum. The symptoms were grave, and the prognosis unfavorable; but it was decided to remove the fractured extremity of the bone. The operation was performed by Brigade Surgeon Peter Pineo, U. S. Vols. The head and the upper fourth of the femur were excised, the shaft of the bone being sawn about two inches below the lesser trochanter. It was found that the ball had entered the pelvis, and that there was internal hæmorrhage. The patient fell into the hands of the enemy. In all probability he survived but a short time. The trochanter major is separated into five fragments, and a long oblique fissure produces a complete solution of continuity of the shaft of the femur. (Compare the Report on Excisions of the Head of the Femur for Gunshot Injury, promulgated by *Circular No. 2*, S. G. O., 1869, p 21.)

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SPECIMEN No. 59. *Lower third of right Femur, the outer Condyle split off by a round Musket Ball. Amputation. Death.*

Private Richard Williams, 28th Pennsylvania Volunteers, was wounded September 16th, 1862, at the battle of South Mountain, by a round musket ball, which entered near the outer hamstring, and lodged between the condyles of the right femur. He was conveyed to Washington, D. C., and admitted into Mount Pleasant U. S. A. General Hospital, September 22d, 1862. On September 30th, his right thigh was amputated, by flap incisions. At this date the limb was excessively swollen: the discharge of pus was profuse; abscesses had burrowed in the soft parts, and irritative fever existed to an alarming degree. The case terminated fatally on October 2d, 1862.

The ball, which remained imbedded in the cancellated structure of the femur, between the condyles, had caused a very oblique fracture into the knee-joint, separating the external condyle from the shaft, and breaking off a fragment from the anterior surface of the inner condyle.

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SPECIMEN NO. 1296 *Gunshot Fracture of the head of the right
Humerus. A Conoidal Ball imbedded. Secondary excision
Death.*

Private George Hetz, Company A, 75th Ohio Vol's, was wounded May 2d, 1863, at Chancellorsville, and on May 25th, 1863, was admitted into the 1st Division, U. S. A. General Hospital, at Alexandria, Va. On May 27th, Surgeon Charles Page, U. S. A., explored the wound, and finding a fracture of the head of the right humerus, limited to the epiphysis, he performed excision. Much inflammatory action ensued, which was treated by irrigation. On June 4th the patient had a chill; an abscess pointed near the insertion of the deltoid, and was opened. On June 7th, 1863, the case terminated fatally.

The specimen exhibits a conoidal ball imbedded in the upper part of the anatomical neck and articulating surface of the head, splitting the head into two fragments. It may be regarded as a typical case for the operation of excision of the head of the humerus.

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PHOTOGRAPH NO. 10. *Gunshot contusion of the outer Table of the Frontal bone, with Fracture of the Vitreous Plate.*

Private Abram L——, Co. C, 78th New York Volunteers, was wounded by a conoidal musket ball at the battle of the Wilderness, May 6, 1864, and entered Armory Square Hospital, at Washington, on May 12th. He was in a comatose condition when admitted, and died on May 24th eighteen days after receiving the injury. No farther particulars of the case can be obtained. The specimen presents a fracture of the inner table of the frontal bone, near the coronal suture, to the left of the median line. There is no solution of the continuity in the outer table; but it is softened where the pericranium was destroyed by the ball. A fragment an inch and a half in length and half an inch broad, is completely detached from the vitreous table. The specimen is an excellent illustration of that variety of fracture of the skull, in which the outer table remains intact, and the thinner and more friable vitreous table is splintered; an accident resulting always, it is believed, either from the shock of a projectile striking the cranium very obliquely, or else from a comparatively slight blow from a body with a large plain surface. Preparations illustrating this variety of fracture of the skull are very rare. M. Legouest presented one to the Dupuytren Museum, and Mr. Prescott Hewett, in his paper on injuries of the head, in Holmes's System of Surgery, refers to the existence of such specimens, and Williamson (*Military Surgery*, pp. 29, 30) gives the history of specimen 2893, of the Netley Museum, which is of this character. The Army Medical Museum possesses eleven examples of this form of injury. This specimen was presented by Surgeon D. W. Bliss, U. S. Vols.

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SPECIMEN No. 2871. *Cranium extensively fractured by a Shell Explosion.*

A confederate soldier, wounded in the demonstration on Washington, July 17th, 1864, was admitted into Lincoln U. S. General Hospital, on that day, and died two hours after admission.

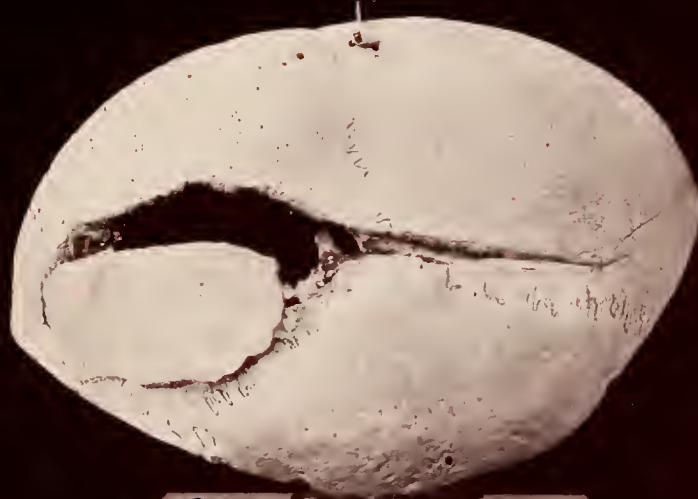
Over the anterior superior angle of the left parietal bone, there was an extended scalp wound. On reflecting the scalp, multiple depressed fractures of the vault of the cranium came into view. The point of greatest depression is an inch to the left of the median line, near the coronal suture. The depressed fragments measure from before backwards two inches, and from right to left three inches, and involve both parietals and the os frontis. A fissure runs through the squamous portion of the left temporal, and all the sutures of this bone are separated.

The autopsy was made, and the specimen forwarded by Acting Assistant Surgeon Henry M. Dean, U. S. A.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 8. *Section of a posterior Portion of a Cranium. Both Parietals are fractured by a Sabre Cut near the Lambdoidal Suture.*

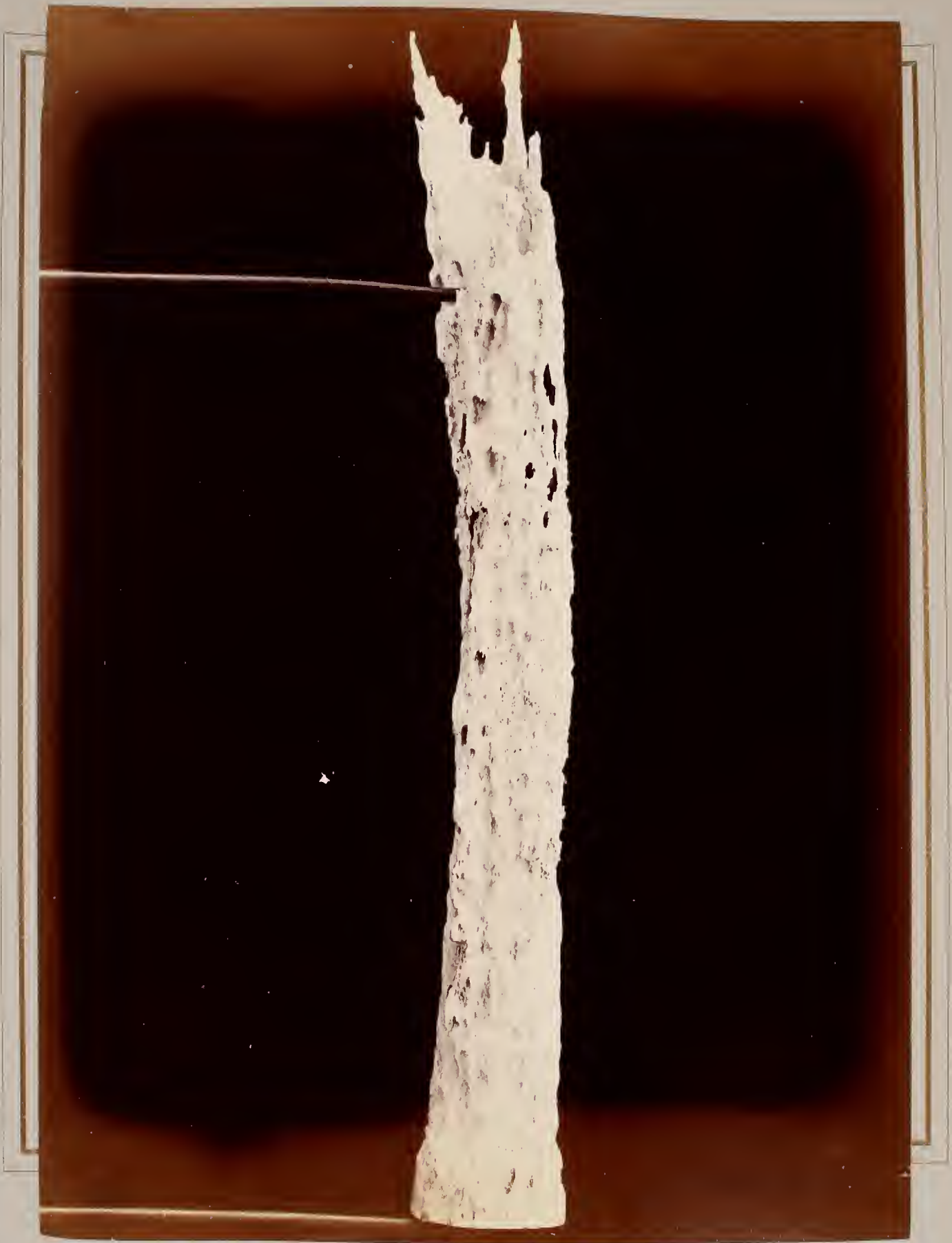
Private James T. Bedell, Co. F, 7th Michigan Cavalry, aged forty-two years, was captured on July 3d, 1863, at Gettysburg, his horse being shot from under him. He was hurried to the rear with other prisoners; in the subsequent retreat he was unable to keep up with the column, and all efforts to goad him on being unavailing, a confederate lieutenant, in command of the provost guard, cut him down, and left him for dead by the roadside. He was brought in by one of our scouting parties, and admitted to the Cavalry Corps Hospital. On the 25th of July, he was sufficiently rational to give the above account to Surgeon Rulison, 9th New York Cavalry. He was in a very depressed state at this time. His pulse was weak and beat from 40 to 45 per minute. He was indisposed to mental exertion; but when roused and interested, was quite rational. He lingered until August 15th, 1863, the tendency to stupor becoming greater and greater towards the close. The autopsy revealed a sabre cut six inches long, which had raised an osseous flap, adherent at its base, from the left parietal, and a fracture of the right parietal, with great splintering of the vitreous plate. The sabre had penetrated the dura mater on the left side, and on the right side the meninges were injured by the depressed inner table. The posterior lobes of both hemispheres of the brain were extensively disorganized. The specimen with the above history was contributed by Surgeon W. H. Rulison, 9th New York Cavalry, since killed in battle. The Specimen is numbered 1672 in the Surgical Section of the Museum.

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PHOTOGRAPH NO. 7. *Sequestrum of the Left Femur, Eight Weeks after the Amputation of the Left Thigh.*

Corporal H. H. Ellis, Co. I, 16th New York Volunteers, aged twenty-three years, was wounded at Fredericksburg, May 3d, 1863, and admitted into Douglas Hospital at Washington, May 8th, 1863. A conoidal ball had comminuted the left patella, (Specimen 1852, A. M. M.,) and the knee-joint was involved. On the 13th of May, the thigh was amputated at the lower third, by the circular method, by Acting Assistant Surgeon J. E. Smith, U. S. A. This patient's health was much impaired by chronic diarrhoea, and after the operation his condition was very unsatisfactory. Secondary hæmorrhage occurred on May 20th, and recurred on the 21st, when the femoral artery was tied in Scarpa's triangle. For many weeks this man clung to life by the slenderest thread. The thigh stump was greatly swollen and very tender on pressure. The line of incision, however, was not unhealthy in appearance, and the discharge was moderate. From the inner angle of the stump the necrosed extremity of the femur protruded. August 9th, 1863, the sequestrum was found to be loose, and Dr. Smith was directed to remove it. After its extraction there was considerable hæmorrhage, nevertheless, convalescence now proceeded rapidly. A formation of new bone replacing the original diaphysis could be readily felt. The stump was not shorter than at first. It soon closed entirely, was firm, and in every respect satisfactory. The man was discharged from the hospital, and from the service of the United States, October 26th, 1863. In December, 1864, he reported himself in good health. The Specimen and a history from which the foregoing facts are derived, was contributed by Assistant Surgeon William Thomson, U. S. A. It is numbered 1853 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.



SURGICAL PHOTOGRAPH NO.

Prepared under the supervision of
ASSISTANT SURGEON GEORGE A. OTIS, U. S. A.
BY ORDER OF THE SURGEON GENERAL.

WAR DEPARTMENT.
SURGEON GENERAL'S OFFICE, ARMY MEDICAL MUSEUM.



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PHOTOGRAPH NO. 6. *Head and six inches of Shaft of Right Humerus successfully excised for Gunshot Fracture.*

Private John F. Reardon, Co. C, 6th New York Cavalry, aged twenty-two years, was wounded at Culpeper, Virginia, October 11th, 1863, and entered Armory Square Hospital, at Washington, on the following day. It was found that his right humerus was shattered by a fragment of shell, which was removed from its lodgement under the deltoid muscle. It was four inches long, one inch broad and weighed nine ounces. The head and six inches of the shaft of the humerus were excised through a straight incision on the outside of the limb. During the after treatment the elbow was well supported. The patient recovered without a bad symptom, and with a remarkably useful limb. In March, 1866, Reardon was reenlisted in the U. S. Army General Service, and was assigned to duty as an orderly at the Army Medical Museum. From that date until the present, (September, 1868), he has served continuously, suffering very little inconvenience from the mutilation he has undergone. Without difficulty he can place his right hand on the top of his head; he can lift a weight of 200 pounds or more with the injured limb without pain. The movements of the forearm and hand are not in the least impaired, and there is great freedom of all the movements of the arm except abduction. The muscular development of the arm equals that of its fellow. No apparatus is requisite, and altogether the result is most satisfactory and successful. The case effectually disproves the dictum of the older military surgeons on the inutility of excisions of the humerus in cases in which it is necessary to saw the shaft below the insertion of the deltoid.

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PHOTOGRAPH NO. 5. *Left Femur of a Confederate Soldier, exhibiting Attempts at Repair of a Gunshot Fracture of the Upper Third.*

Private E. W. A——, Co. G, 5th Florida Regiment, 18 years of age, was wounded July 3d, 1863, at the battle of Gettysburg, by a conoidal musket ball, which shattered the upper third of the left femur. He was first treated in a field hospital, but on August 5th, 1863, was admitted to Camp Letterman General Hospital. At that date, the patient was reduced by profuse suppuration; he was greatly emaciated, and large bed-sores had formed on his back. On August 12th, a troublesome diarrhœa set in. He lingered till September 15th, 1863, when he died from exhaustion. The large foliaceous masses of callus uniting the fragments are extremely delicate and brittle. The Specimen is numbered 1938 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 4. *Left Femur fractured by a conoidal musket ball.*

Private John Draker, company I. 57th Pennsylvania Volunteers, aged twenty-five years, was wounded on picket duty on the Rapidan, November 27, 1863. A conoidal musket ball passed through the muscles of the right thigh, and, entering the middle of the left thigh at its inner side, flattened itself against the femur, and shattered the bone. The patient was transferred to Alexandria by rail, and admitted, on December 4, 1863, to the Prince Street Hospital, under the care of Acting Assistant Surgeon J. Cass. The left thigh was very much swollen. On December 7, the patient became delirious. The soft parts of the left thigh were in a gangrenous condition. He died on December 13, 1863. He had bloody expectoration and other symptoms of pleuro-pneumonia at the last. At the autopsy, the periosteum was found separated from a large part of the shaft of the femur; there were large abscesses in the thigh, and the soft tissues were greatly disorganized nearly to the hip; there was a large amount of sero-purulent offensive fluid in the right pleural cavity. The specimen of the fractured femur is No. 1907 of the Surgical Section of the Army Medical Museum, and is a good example of a comminution of the shaft of a long bone by a ball moving at a low rate of velocity. The ball must have struck with its long diameter parallel to that of the shaft of the femur.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 3, 196 AND 197. *Case of successful primary amputation at the Hip Joint.*

Private James E. Kelly, company B, 56th Pennsylvania Volunteers, aged twenty-eight years, was wounded at about 9 o'clock of the morning of April 29, 1863, in a skirmish of the First Division, First Corps, on the Rappahannock, nearly opposite the "Pratte House," below Fredericksburg. A conoidal musket ball, fired from a distance of about three hundred yards, shattered his left femur. A consultation of the senior surgeons of brigades decided that exarticulation of the femur was expedient, and the operation was performed, at four in the afternoon, at the "Fitzhugh House," by Surgeon Edward Shippen, U. S. Vols., Surgeon-in-chief of the First Division. The single flap method was adopted, and the amputation was accomplished with slight loss of blood. The patient was at first placed in a hospital tent, and was transferred, May 22, to the Corps Hospital, progressing favorably. By May 28, all the ligatures had been removed. On June 15, 1863, the patient was captured by the enemy, and was removed to the Libby Prison, in Richmond. Up to this date there had been no bad symptoms. On July 14, Kelly was exchanged, and was sent to the Annapolis U. S. A. General Hospital. On his admission he was much exhausted by profuse diarrhœa. The internal portion of the wound had united, but the external portion was gangrenous. Applications of bromine were made to the sloughing surface without amelioration. A chlorinated soda lotion was substituted, and in the latter part of July there was a healthy granulating surface. On December 23, 1863, the wound had entirely healed, and Kelly visited Washington, and obtained an honorable discharge from service, and a pension. At this date, the picture from which the photograph was taken was drawn by Hospital Steward Stauch, U. S. A., one of the artists of the Army Medical Museum. Kelly then went to his home, near Black Lick P. O., Indiana County, Pennsylvania. A letter, dated January 12, 1865, was received from him at this Office, and represented him as in excellent health and spirits at that time. In the spring of 1868, Kelly went to New York and had an artificial limb adapted by Dr E. D. Hudson. At that time the photograph was taken. He could walk quite well after the adaptation of the artificial limb. The specimen is preserved at the Army Medical Museum and is No. 1148 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 2. *Perforation of the Right Femur, just above the Condyles, by a Musket Ball.*

Private Samuel S. Kopp, Co. E, 10th Pennsylvania Reserves, was shot through the lower third of the right thigh, by a musket ball, at the second battle of Bull Run, August 28th, 1862. The ball entered just above the patella, and made its exit in the popliteal space. The patient was taken, after a few days, to Alexandria, and admitted to General Hospital. On September 20th, 1862, his thigh was amputated at the middle by Surgeon Charles Page, U. S. A. He survived the operation two days. The specimen presents a very good example of a gunshot perforation through the cancellated portion of a long bone. Two fissures, which extend through the diaphysis, are seen running to the middle third of the shaft. A narrower fissure separates the condyles.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 1. *A Portion of Cranium, with Conoidal Ball imbedded in the Ethmoid and Frontal Bones.*

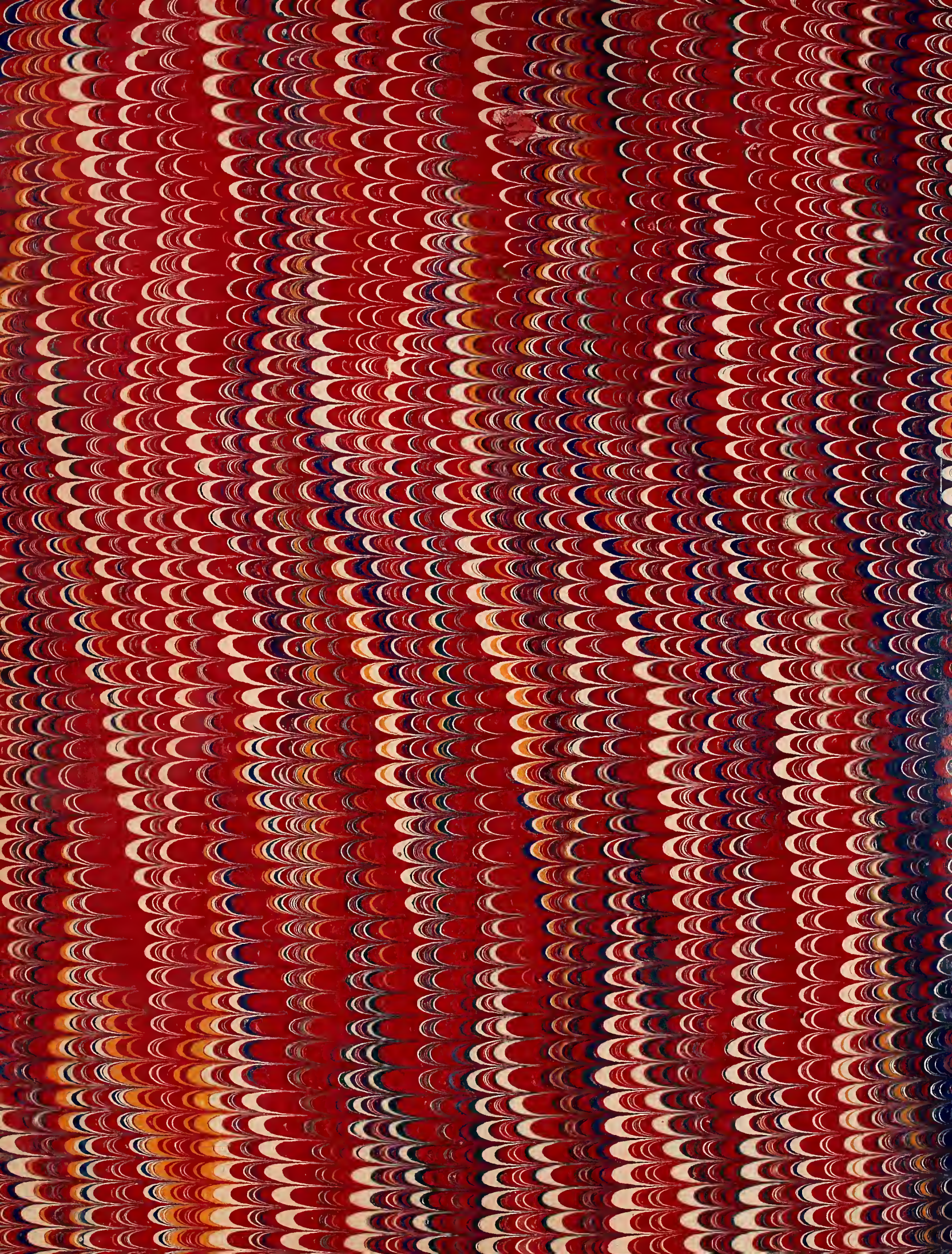
Corporal G. W. S., 12th Massachusetts Volunteers, aged 29 years, was wounded at the battle of Fredericksburg, December 13th, 1862, and admitted into the Camden Street, U. S. A. General Hospital, Baltimore, Maryland, December 19th, 1862. The globe of the right eye was destroyed. There was a slight slit in the lower lid. The patient did not complain of much pain. The functions of the other eye were not disturbed, although the organ was observed to be unnaturally prominent. Slight headache was the only brain symptom present. Neither the patient nor medical attendants suspected that the ball had entered the orbit. The wound healed kindly, and after three weeks the man went about the city habitually, with a pass. He continued well, with the exception of an occasional pain over the left eye, until February 6th, 1863, when he had a chill, followed by febrile reaction. There were, however, no marked cerebral symptoms, until February 10th, 1863, when delirium came on. On the following day the patient became comatose, and at midnight of February 11th, 1863, he died. The autopsy revealed a conoidal bullet, entering at the inner angle of the right orbit, through the orbital plates of the frontal and ethmoid bones, and resting between the sphenoid, ethmoid, and frontal bones, pressing back the left orbital plate of the latter. The ball was in contact with the dura mater, which had ulcerated at this point. At the base of the anterior lobe of the left cerebral hemisphere was an abscess containing two drachms of pus. A formation of callus encrusted the ball and diminished the opening originally made by it. There was no necrosis. The specimen is numbered 1108 in the Surgical Section of the Museum.

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